

Historic Bridges of Frederick County

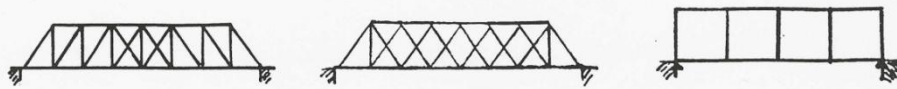


Frederick County, Maryland
Division of Public Works

Frederick County's Bridges

- We have 216 bridges over 20 foot span.
- 26 are historic, with 10 on the National Register of Historic Places.
- Three of those on the National Register are our covered bridges at Roddy Road, Loy's Station and Utica.
- One is the stone arch on Legore Bridge Road.
- The remaining 22 are metal truss bridges.

Truss Types



Through Howe

Double Triangle

Viereedel Girder
(Frame structure)



Through Warren

Camel Back

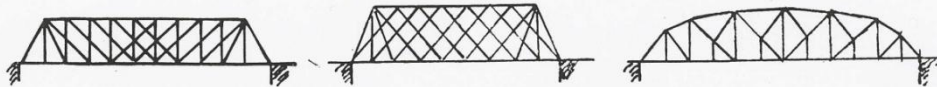
Bowstring



Pratt

K Truss

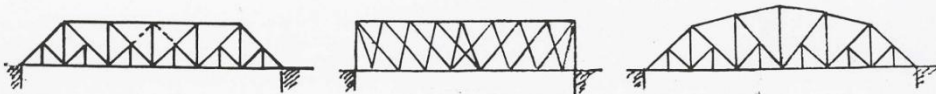
Parker



Whipple

Lattice

Pettit



Baltimore

Post

Pennsylvania

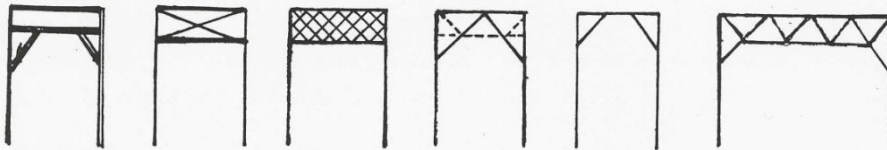


Plate girder
portal

Diagonal
Bracing

Lattice
portal

A Frame

Knee-braced
portal

Warren Truss
portal

Pratt	15
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Warren	4
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Bowstring	1
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Camelback	1
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Whipple	1
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Total:	22
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Roddy Road Covered Bridge



Roddy Upstream Truss - Kingpost



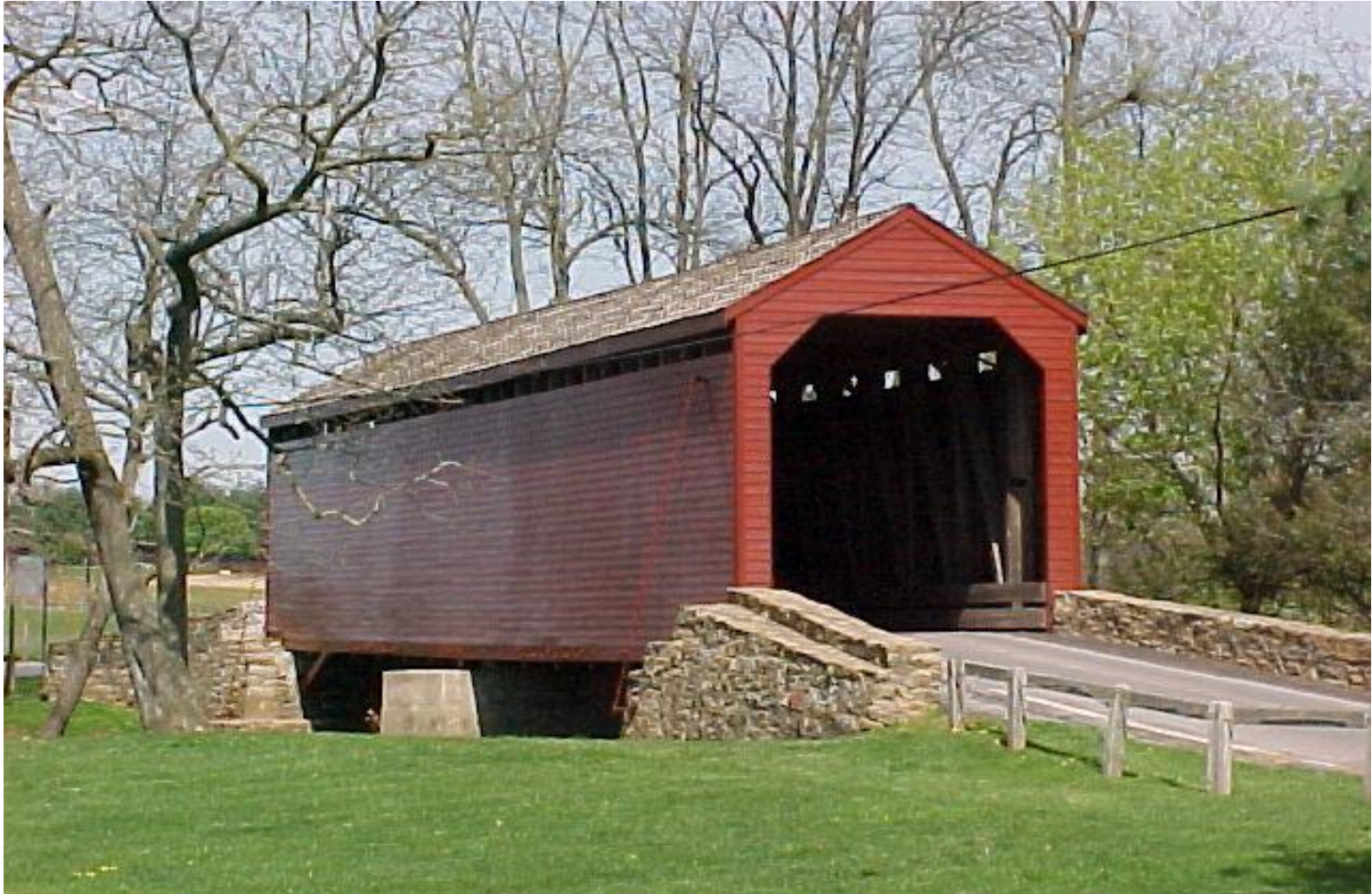
Roddy Road Covered Bridge History

- This bridge was built by the Roddy family around 1856
- It was listed on the National Historic Register in 1977
- The Stone abutments were rehabilitated in the late 1970's
- Volunteers repaired truck damage in November 1992
- This bridge was rehabilitated in 1995

Roddy Rehabilitation - 1979



Loy's Station Bridge



Multiple King Post Truss



Loy's Station Covered Bridge



- This bridge was originally built at its current location around 1860.
- Old Frederick Road is shown on an 1853 map as the route to Emmitsburg from Frederick.
- It was reinforced with steel beams and a center pier in the 1930s.
- It was rehabilitated in 1976 as part of the National Bicentennial.
- It was rebuilt after a fire and rededicated in June of 1994
- The wood shingles are signed by many people who helped pay for them.

Utica Covered Bridge - 1889



Utica Covered Bridge History

- This bridge was originally built over the Monocacy River in the early 1800s. It was washed out in June of 1889 by the same storm that caused the Johnstown Flood.
- The people of Utica salvaged the bridge and moved it to its current location.
- It was reinforced in the 1930s with steel beams.
- It was rehabilitated in 1979..
- Major restoration work completed spring of 1997.

Utica Rehabilitation - 1979



Utica Rehabilitated 1994 –1995



Preventing Fire Damage

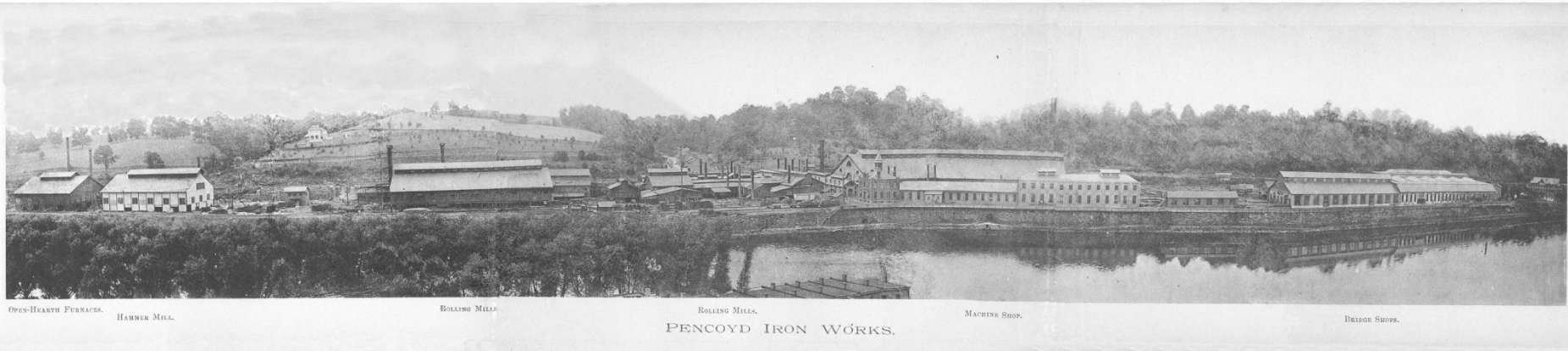
- We decided to try to prevent future fires as a result of the fire at Loy's Station.
- We applied Fire Preventer to all three bridges.
- We installed lights and an alarm system.
- We installed “dry hydrants” close to each bridge.



Bridge and Iron Companies

- In the late 1800s there were many companies that patented bridge designs that they fabricated.
- We have truss bridges by five companies.
- In 1900 J.P.Morgan and Co. incorporated the American Bridge Company.
- 24 companies representing 50 percent of the nations fabricating capacity were acquired to form the American Bridge Company.

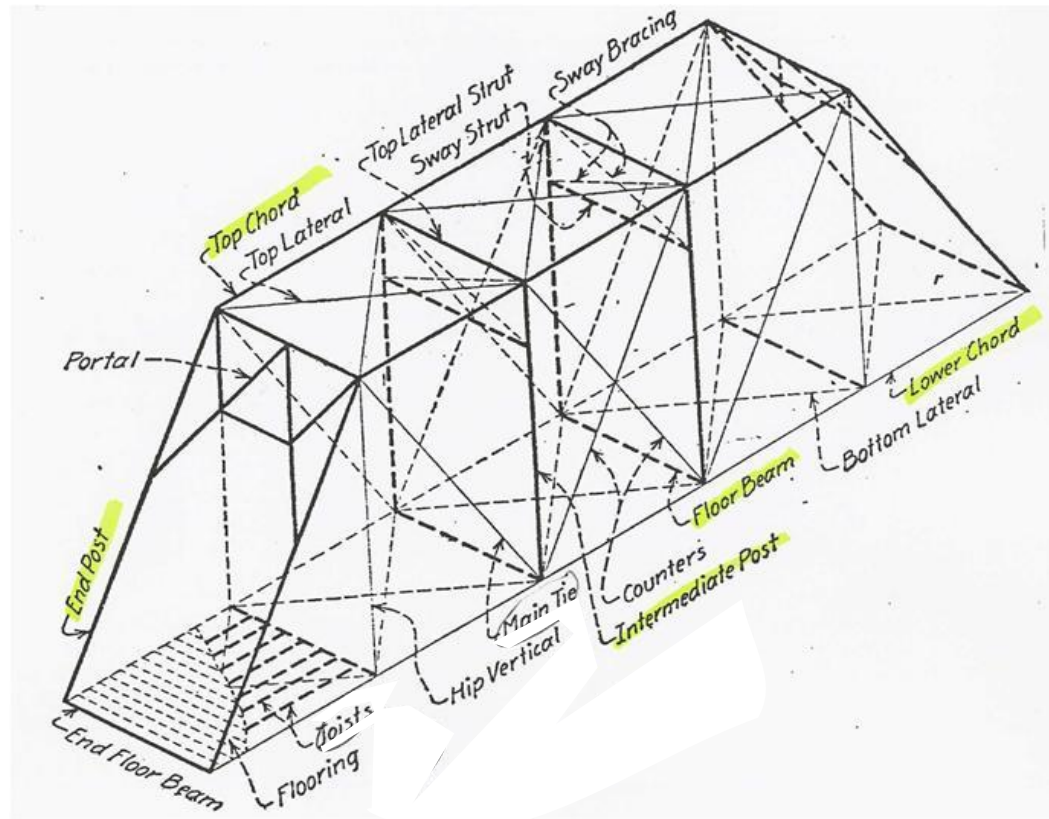
Pencoyd Iron Works - 1888



This photo shows open-hearth furnaces at the very left, then the hammer mill, rolling mills, and machine shop. They started making steel in 1887. In 1892 they were making 615 tons of steel per week.

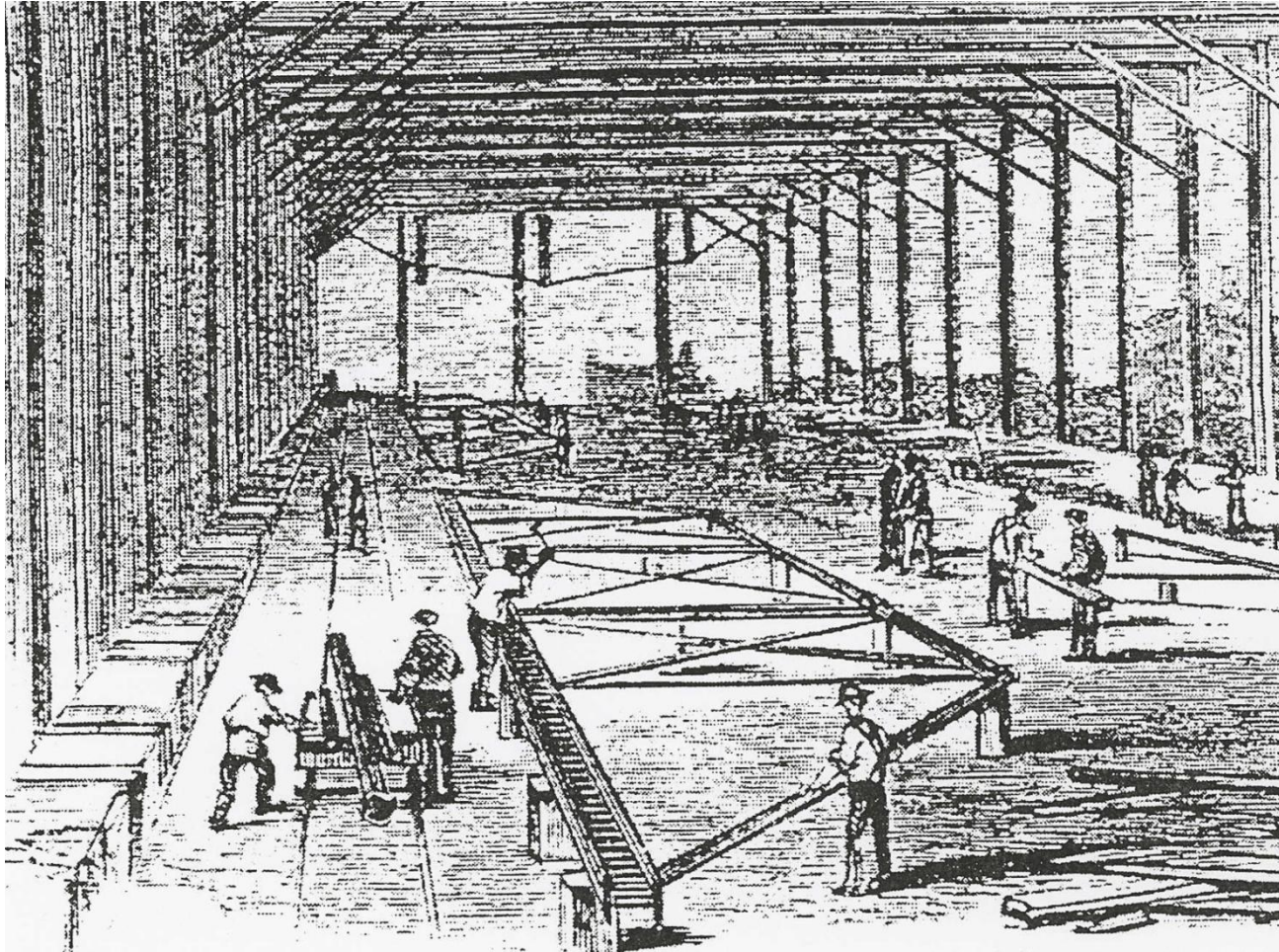
The buildings to the right of the photo are the Bridge Shops, which were producing 7,500 tons of finished material per month by 1901.

Pratt Truss Highway Bridge

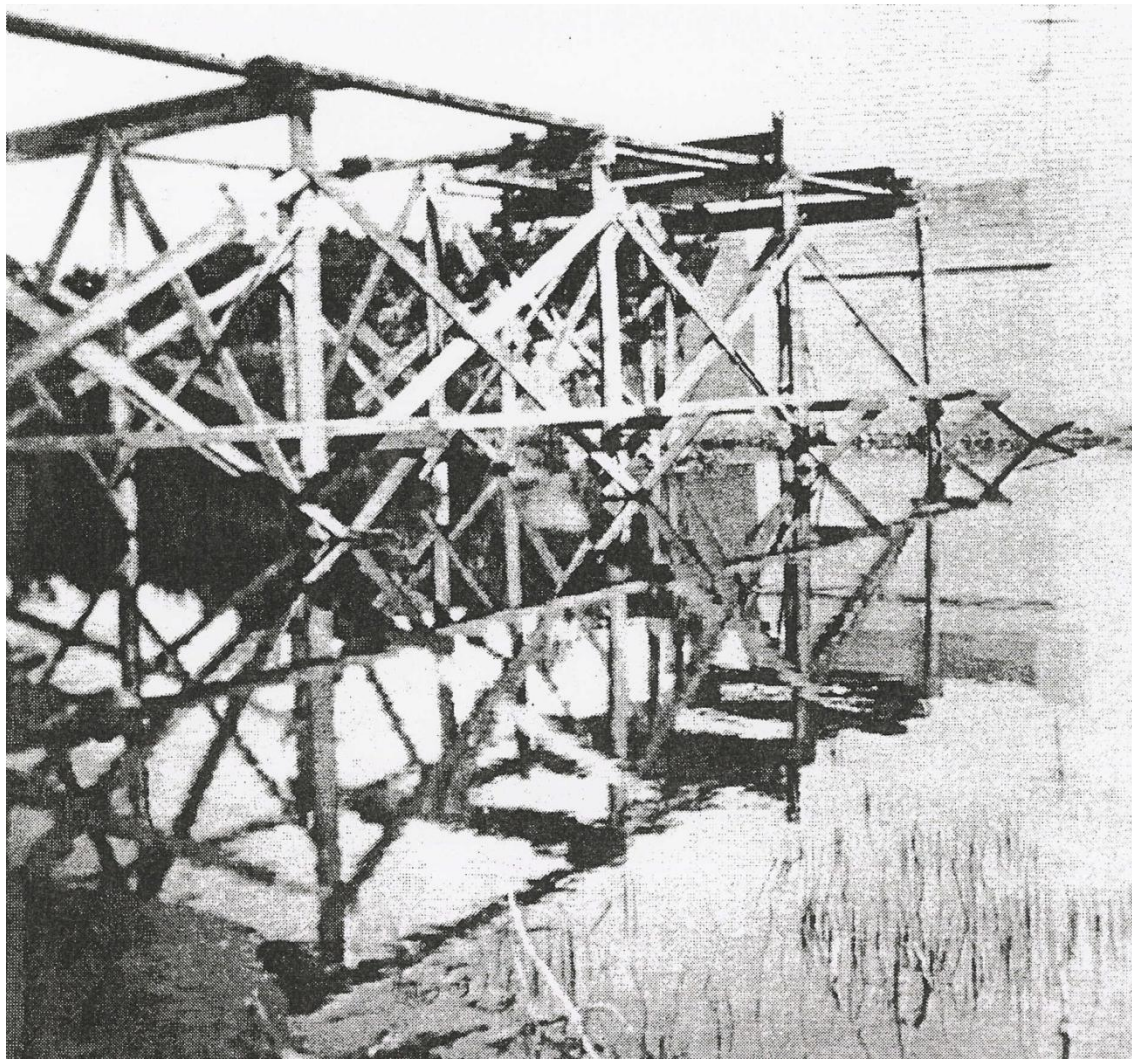


- Primary members are the top chord, bottom chord and endposts.
- Diagonals and lateral braces transfer loads and brace primary members.

Truss – Shop Trial Assembly



Sample Falsework for Truss



- This temporary support system was a very important part of the construction process.
- It supported the steel truss members.

Bullfrog Road Through Truss



- This bridge was built in 1905 by the York Bridge Company over the Monocacy River east of Emmitsburg
- It is listed on the National Register of Historic Places
- Its span of 183' is the longest historic bridge span in the County
- The top chord is 30' above the deck.
- It is a rare example of the camelback truss design
- It was rehabilitated through a CIP project in 1996

Creamery Road Bridge



- Originally built in the 1880's by the Wrought Iron Bridge Company of Canton Ohio.
- It is a Pratt pony truss.
- It was rehabilitated through a CIP project in 1997
- It is one of the few remaining wrought iron bridges left in Frederick County

Keysville – Four Points Bridge



- This bridge was originally built by the Wrought Iron Bridge Company of Canton Ohio in 1880 and is listed on the National Register of Historic Places
- It is one of the few remaining wrought iron bridges left in Frederick County
- In September of 1996 this bridge was washed off of its abutments by hurricane Fran.
- After a complete assessment, it was lifted out of the creek by crane and rehabilitated.
- It was placed back on its abutments and opened to traffic in August of 1997.

Grimes Road Through Truss



- This bridge was built by the York Bridge Company in 1915 over Tom's Creek
- It was rehabilitated through a CIP contract in the Spring of 1995
- The concrete abutments were repaired and riprap placed.
- Many members were repaired or replaced.
- A steel grid deck was installed.

Sixes Bridge Road Bridge



- This bridge was built in 1915 by the York Bridge Company of York PA.
- Rehabilitation was completed in the Spring of 1995
- At 240 feet long it is the longest historic bridge in Frederick County.
- It is the only two span historic bridge remaining on the Monocacy River owned by Frederick County
- Many of the lower chord members and diagonals were repaired or replaced in 1995.

Apples Church Pony Truss



- This bridge was built by the York Bridge Co. in 1917.
- It is a gusset plate truss which was prefabricated using rivets in a factory, delivered to the site and assembled.
- The trusses came in two halves that were then bolted together at the site.
- Then the floor system was installed.
- The County bridge crew rehabilitated this bridge in 1997.

Hoovers Mill Pony Truss



- This bridge was built in 1887 by an unknown company.
- This bridge is similar to some other bridges in the County that were built by the Wrought Iron Bridge Company in the same time period.
- This bridge was rehabilitated in 1996 by the County bridge crew.

Stevens Road Bridge



- This thru truss bridge was built in 1912 by an unknown company.
- It is very similar to Simpson's Mill Road bridge.
- It was rehabilitated by a contractor in 1990.
- This was the first historic bridge to be rehabilitated and has a open metal grate deck

Simpson's Mill Road Bridge



- This bridge was built about 1890 by an unknown company.
- It is very similar to the Stevens Road bridge.
- It was rehabilitated by a contractor in the winter of 1997-1998

Blacks Mill Road Bridge



- This bridge was built by the York Bridge Company in 1914
- It was rehabilitated by the County bridge crew in 1995
- In January of 2002 it was heavily damaged by a vehicle collision.
- The County bridge crew and area crew repaired and reopened it within one week.

Crow Rock Pony Truss



- This bridge was originally built in 1897 by the Groton Bridge Company
- It is a pony truss on stone abutments, one of which is mostly made of a large rock outcrop.
- It was rehabilitated by a contractor in 1997.
- It has original cast iron plaques on the top chord of each truss.

East Church Hill Road Bridge



- This is a Pony truss bridge
- It was designed and built by the York Bridge Company in 1908
- Rehabilitation was completed by the County bridge crew in 1994.

Station Road Bridge



- This bridge was built by the York Bridge Company in the early 1900's.
- It was rehabilitated by the County bridge crew in 1996.
- It is a good example of a pin connected pony truss.

Old Mill Road Bridge



- This bridge was built in 1882 by the Pittsburgh Bridge Company.
- It is listed on the National Register of Historic Places.
- It is very light weight which is typical of early metal trusses.
- This bridge is unique because it's bottom chord runs through it's floorbeams and it has lattice instead of solid plate on top of the endposts and top chord.
- It was rehabilitated by a contractor in 2009.

Bennies Hill Road Bridge



- This bridge was built in 1879 by the King Iron Bridge Company.
- It is a very rare Bow string pony truss.
- It is listed on the National Register of Historic Places.
- It was rehabilitated by a contractor in 2009.

Sumantown Road Bridge



- This bridge was built by the Pencoyd Iron Works of Pennsylvania in 1899.
- It is a pin connected thru truss.
- It was rehabilitated by the County bridge crew in 1999.

Poffenberger Road Through Truss



- This bridge was built by the Wrought Iron Bridge Company in 1878.
- This bridge is listed on the National Register of Historic Places.
- It is a very rare double intersection Pratt (Whipple) thru truss.
- Both original stone abutments are still in good condition.
- Rehabilitation was completed by a contractor in 2006.

St. Marks Road Bridge



- This bridge was built in the early 1900's by an unknown company.
- It is very similar to bridges built by the York bridge Co. at this time.
- It is an example of a Pratt pony truss with pin connections.
- It was rehabilitated by the County bridge crew in 2009.

Reichs Ford Road Pony Truss



- This bridge was built in 1905 by the York Bridge Company
- It is a good example of a gusset plate pony truss.
- It was rehabilitated by the County bridge crew in 1994.

Dixon Road Pony Truss



- This bridge was built by the York Bridge Company in 1904.
- It is a good example of a gusset plate pony truss.
- It was rehabilitated by the County bridge crew in 1995.

Covell Road Bridge



- The Stauffer Road bridge was rehabilitated and placed on new abutments at Covell Road bridge by a contractor in 2006.

Friends Creek Bridge



- The Harmony Road bridge was rehabilitated by the County bridge crew in 2002.
- It was then installed on Friends Creek Road over Friends Creek.

Old Hagerstown / Glenbrook



- This bridge was built in 1920 by an unknown company.
- It was replaced in 1994.
- It has been rehabilitated and placed in the Golf Course at Glenbrook in 2001.

Crum / Ballenger



- This bridge is a very rare bowstring arch pony truss.
- It was originally built by the King Iron Bridge Company in 1880.
- It is on the National Register of Historic Places.
- It has been rehabilitated and placed in the Ballenger Creek Park.

Ben's Branch



- The Old Harmony Road bridge is now installed on a bike path over Ben's Creek in Linganore.
- It was installed by the local community.

Frederick County Bridge Program

- In-house bridge crew for maintenance, repair, and rehab of County bridges
- Low ADT and low speed roads provide more opportunities to keep historic bridges in service
- Federal Funds used for inspection and rehabilitation of existing bridges.
- County practice is to maintain/rehab existing structures as long as they can meet the needs of the traveling public

Challenges of Metal Truss Bridges

- Comprised of Fracture Critical Members
- Vehicular impact
- Maintenance
- Posting
- Increased inspection frequency

Legore Stone Arch Bridge



- Frederick County's singular Stone Arch Bridge was constructed in 1903 by James Legore, the owner of Legore Quarry in order to transport stone over Monocacy River
- It is listed on the National Register of Historic Places
- One of the earliest types of bridges to be built in this country
- Rehabilitated in 2009

End of Presentation

If you have any questions please contact the
Office of Transportation Engineering at
(301) 600-1687 for more information.